CHAPTER I

INTRODUCTION

This chapter will explain the background, research problem, the purpose of the research, the scope of the research, and the outline of the report.

1.1. Background

User experience (UX) is the whole interaction a user has with a product, organization, or service (Jodie, 2012). User experience is something subjective, no matter how much effort a designer or web designer spends, they are unable to control the entirety of how the user will feel when the user uses their product (Maioli, 2018). The user experience design process entails the design of a service or product, or only the part of a service or product, such as a web application to maintain inventory in a company (Stull, 2018).

User interface (UI) is the segment of a computer and the software within it the user can hear, see, touch, talk to, or else direct or understand (Galitz, 2002). The user interface is more objective and controllable, so the questions a UI designer needs to consider are the off and on buttons on a phone visible. Does the layout and all the colors show the information necessary with ease? Is the software intuitive? (Maioli, 2018).

The UX and UI are used at the same time to intensify the effects of the design on those who have contact with it or in a simple way to see the differences between UI and UX you can improve the UI to create a better UX (Maioli, 2018). So to satisfy the users, the designer needs to make sure the UX and the UI are suitable for the users.

The industrial engineering department at Andalas University has several laboratories. The function of the laboratories is to let the undergraduate student apply the materials they learn in the classroom, such as calculating real statistical data, creating a design for a facility, and so on. The laboratories are Laboratorium Sistem Produksi (LSP), Laboratorium Tata Letak & Fasilitas Pabrik (LTLFP), Laboratorium Proses dan Optimasi Sistem Industri (LPOSI), Laboratorium Perancangan Sistem Kerja & Ergonomi (LPSKE), Laboratorium Bisnis & Manajemen (LBM), and Laboratorium Sistem Informasi & Komputasi (LSIK). In each laboratory, there are some particular activities such as lab work, tutorials, and more. When the laboratories perform their activities, they are required to share information related to their activities such as schedule, modules, and other information to the undergraduate students. To share the information efficiently, the laboratories use websites to handle the information they need to share.

Website for educational institutions is exceptionally important. Websites are the most important form of online appearance, reflecting the institution's reputation, style, and activity (Losonczi, 2012). According to a study by Schimmel et all (2010), 94 percent of student participants answered conclusively to the statement "Prior to considering a school, I examine its website". Each laboratory except LPSKE currently already has a website. The landing page from one of the websites is displayed in **figure 1.1.** The landing pages for all laboratory websites can be viewed in **Appendix A**.
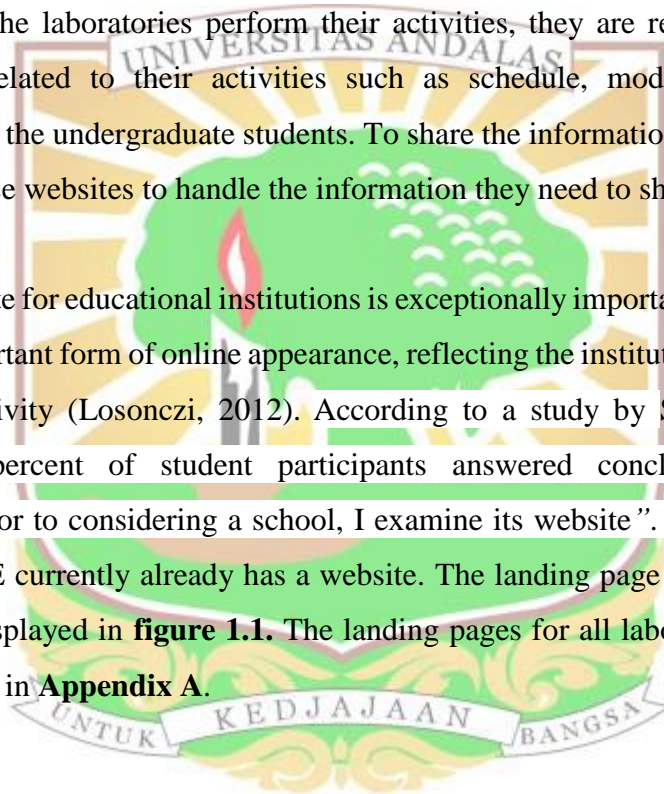
Figure 1.1 Landing Page of Business and Management Laboratory Website

There are arguably several weaknesses in the websites. One example is, the About us page a valuable digital asset, it has a function to introduce a company or organization, establish credibility, and build trust with potential customers (Dublino, 2022). In this matter, the potential customers are prospective students or possible companies to collaborate with the laboratories. Of 5 existing laboratory websites only LBM and LSP has an about us page. It shows one crucial problem the laboratory website is having.

To see how the current laboratory's website performs during daily use, a survey is conducted. The survey uses the Framework for the Evaluation of Academic Websites (Devi, 2016). The framework has 5 main aspects: functionality, usability, reliability, presentation, and content. According to Faulkner (2003), 5 users can find an average of 85.55% of the problem, and 10 users can find an average of 94.686% of the problem during testing. The user survey data was gathered during a preliminary study from 13 undergraduate students of the industrial engineering department.

According to the survey, generally, the respondents gives the websites low score, and suggestions to fix or improve the website. It shows that the websites have weaknesses and need to be improved. From the functionality aspect, the respondents were given a statement, "The website has all necessary features (suitability)", 8 out of 13 respondents disagree and the rest of the respondents respond with neutral. The diagram for suitability questions results can be viewed in **Figure 1.2**. There are also some suggestions related to the functionality aspect given by the respondents such as the user needs a content pinning feature to make important content can be accessed fast.

From the usability aspect, the respondents were given a statement, "The website can be used easily (operability)", 6 out of 13 respondents respond disagree, 5 respondents were neutral and 2 respondents agree. The diagram for operability questions results can be viewed in **Figure 1.3**. There are also some suggestions related to the usability aspect given by the respondents such as the user needing a content categorization feature to make the content easier to find.

From the reliability aspect, the respondents were given a statement, "The website able to be accessed every time (availability)", 9 out of 13 respondents respond strongly disagree and disagree, 1 respondent is neutral, and 3 agree and strongly agree. The diagram for availability questions results can be viewed in **Figure 1.4**. There are also some suggestions related to the reliability aspect given by the respondents such as the user needs a content pinning feature to make important content can be accessed fast.

From the presentation aspect, the respondents were given a statement, "The website has an interesting and good user interface (aesthetic/graphic)", 10 out of 13 respondents respond strongly disagree and disagree, 1 respond neutral, 2 respond agree and strongly agree. The diagram for aesthetic/graphic question results can be viewed in **Figure 1.5**. There are also some suggestions related to the presentation aspect given by the respondents such as the user needing a new minimalist and modern design to make the website more interesting.

From the content aspect, the respondents were given a statement, "The website has information related to the author for every content (authority)", 8 out of 13 respondents respond strongly disagree and disagree, 3 respond neutral, and 2 respond agree and strongly agree. The diagram for authority questions results can be viewed in **Figure 1.6**. There are also some suggestions related to the content aspect given by the respondents such as The user needing an author and date uploaded in every content to make the website more professional.
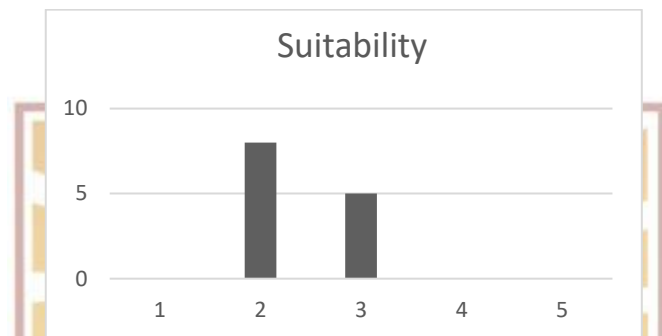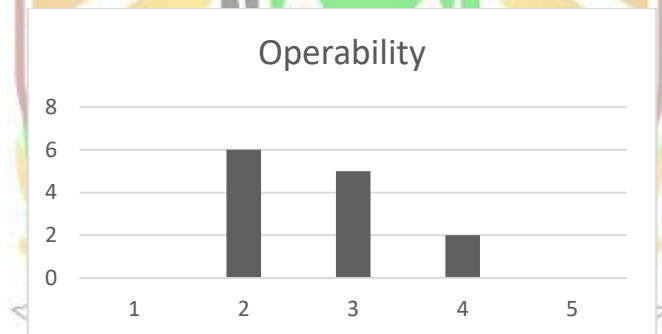

Figure 1.2 Result from Suitability Question
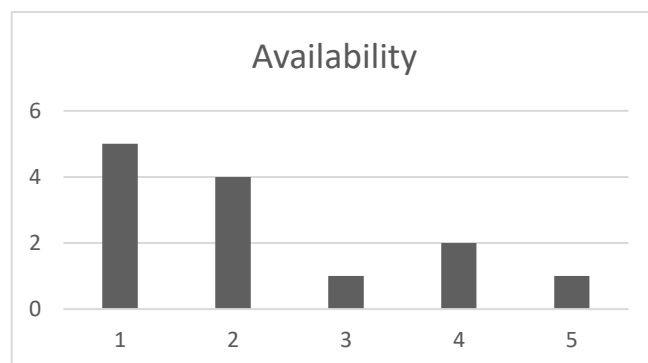

Figure 1.3 Result from Operability Question

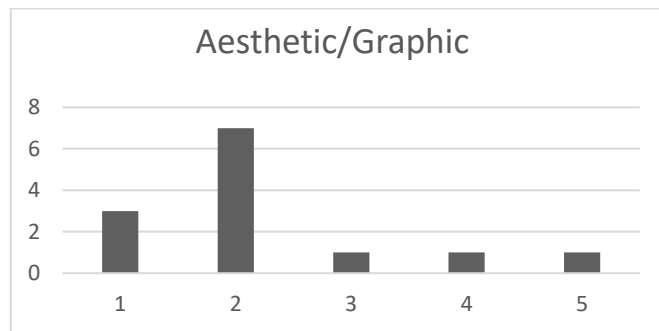**Figure 1.4** Result from Availability Question

Figure 1.5 Result from Aesthetic/Graphics Question

Figure 1.6 Result from Authority Question

The survey describes that the websites still have weaknesses and what features are needed to optimize the websites. To optimize the user experience of the laboratory in industrial engineering laboratories, research is conducted. The methodology used in this research is the five plane method by JJ Garett. The five plane methods consist of several planes: strategy plane, scope plane, structure plane, skeleton plane, and surface plane (Garett, 2011).

1.2. Research Problem

The research problem proposed in this research is how to design a suitable user experience for laboratories in Industrial Engineering at Andalas University.

1.3. Purpose of The Research

The purpose of this research is to design a suitable user experience for laboratories in Industrial Engineering at Andalas University.

1.4. Scope of The Research

The scope of this research is:
1. The users included in the design process are undergraduate students registered in 2018 or later in Industrial Engineering at Andalas University.
2. The user experience is optimized for mobile and desktop users only.

1.5. Outline of Report

The outline of the report of this research is:

CHAPTER I   INTRODUCTION

This chapter explained the background, research problem, the purpose of the research, and the outline of the report.

CHAPTER II   LITERATURE REVIEW

This chapter explained the theories required related to the research. The theories are user experience, user interface, usability, and other related theories.

CHAPTER III   RESEARCH METHODOLOGY

This chapter explained the phases of this research. The phases are preliminary study, literature study, user experience design, testing, analysis, and closing.
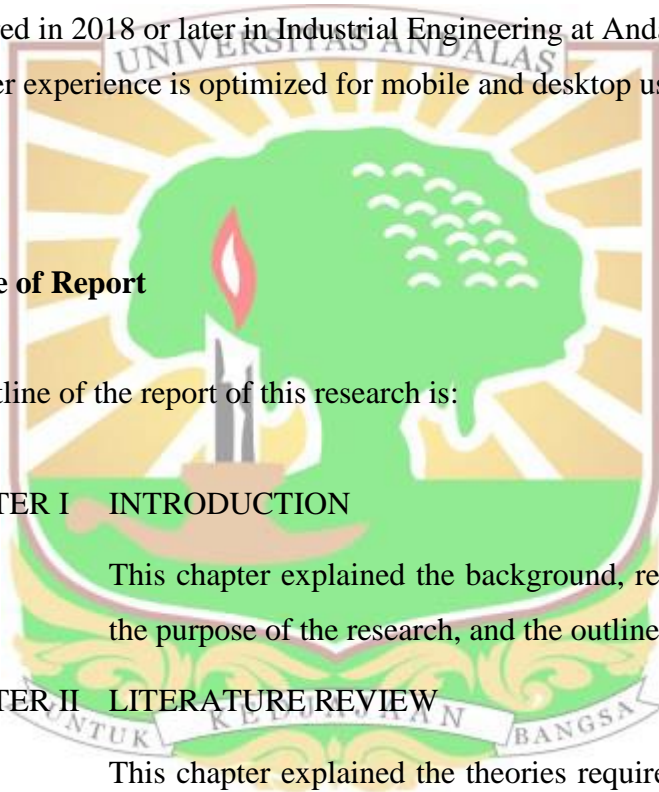
CHAPTER IV USER EXPERIENCE DESIGN

This chapter explained the phases of user experience design. The phases are five planes: strategy, scope, structure, skeleton and surface, and usability testing.

CHAPTER V ANALYSIS

This chapter will explain about analysis of usability testing analysis and final survey analysis.

CHAPTER VI CLOSING

This chapter explained the conclusion and suggestions for this research report.